



Allied Times

India Wood Supplement ❖ An Allied Resins & Chemicals Ltd., Publication

Star Export House

Our export arm Aarem Chemicals (P) Ltd. has become Government of India recognized "Star Export House" from 1st April 2007.



Breaking News

ARCL has conceived 1,00,000 tonnes resin plant in North India with captive formaldehyde plant.

Target commissioning March 2009.

Long cherished Methanol plant

ARCL has been allotted 2 lac cu. Mtr. per day of Natural Gas by ONGC for setting up a Methanol Plant in Tripura.

Thus our long cherished dream is coming true.



Mr. Mukesh Mundhra

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From the Chairman's Desk



This issue is dedicated to our participation in INDIAWOOD 2008. Indian economy is successfully maintaining the growth momentum. Exports are growing at a phenomenal rate. So is ARCL's. Today company is exporting almost 75% of its production to more than 35 countries covering 5 continents.

ARCL's formaldehyde plant is successfully commissioned in China. The recently acquired Cibatul's resin dryer has been shifted to Rampur complex and commissioned.

Environmental consciousness is growing day by day all over the world including India. In this issue, we have tried to address air and water pollution from plywood industry and its solution.

With fierce competition in the market place, increasing the productivity and reducing the glue line cost is everybody's concern. Our, this issue has covered both the aspect which I am sure will be of immense interest to you.

Suraj R. Mundhra
Chairman & Managing Director

35 Plus : Recently Peru has been added to our expanding global family.
SPREADING OUT GLOBALLY & INNOVATIVELY



Exporting Successfully to

AUSTRALIA	DUBAI	GUYANA	MAURITIUS	SRI LANKA
BANGLADESH	ETHIOPIA	HONDURAS	MYANMAR	SPAIN
BHUTAN	FRANCE	ITALY	NEPAL	TAIWAN
BRAZIL	GABON	IVORY COAST	PERU	THAILAND
CAMBODIA	GERMANY	KENYA	PHILIPPINES	TURKEY
CHINA	GHANA	MADAGASCAR	RUSSIA	USA
CONGO	GUINEA	MALAYSIA	SINGAPORE	VIETNAM

Need of the Hour – Increasing productivity in the Ply Wood Industry

— U. S. Panda

Increasing the production with the existing machineries is the dream of every entrepreneur. More the production would mean fewer overheads and as such, low the production cost. Productivity means in totality - increase the dryer capacity, reduce the hot press time and also minimize the defective percentages. We have observed that in developing countries like China and Malaysia productivity per hot press is much higher than us. It is mainly due to following points.

1. Production process is semi automatic and hardly their hot press remains blank as their production process is very fast and time taken for loading and unloading is below one minute.
2. Hot press time is 2 minutes for 4 mm and in between 7 min. to 9 min for 12 mm with 3 glue lines.
3. Most of the factories works at higher moisture content i.e. upto 16%. Number of daylight is more in a hot press than the number of hot presses with 10-12 daylight.



Although putting up of 15-20 daylight hot presses has started in India also and few big houses has also started to increase the productions at a comparatively minimum cost, but is still a long way to acquire maximum utilization of hot press. This is mainly because the dryer capacity is comparatively less as mostly over dried core veneers are used and also because minimum hot press time technologies have not yet been adopted. It is observed in many factories of North India, even 24 hour production is not taken by the factories with the existing facilities, and if one asks the reason, they will answer that during the night, veneer drying and flattening takes place in the hot press for the next days production. We have also observed that in few factories hot core veneer is being used immediately after drying and the reason is that their dryer capacity is low compared to the production capacity and hence they have no time for conditioning. In China, even at the few areas where the maximum temperature does not reach more then 25 Deg.C throughout the year, factories are running without dryers. Similarly, the Hot Press Time plays an important role to increase the productivity. At present in general for 12 mm plywood, most of the factories are giving 12-minutes time for commercial plywood and 15 minutes for BWP plywood. Though, those who are following pre pressing gluing system are giving 1-2 minutes less than the normal time. But still there is a long way to go. There are gluing technologies available worldwide where 12 mm BWP plywood can be hot pressed even at 8 minutes hot pressing time also.

Just imagine how much production can increase by adopting such technologies and thus cost saving!

Last but not the least, in India Glue Line Cost plays a very important role and for most of the factories it is on top priority to reduce the GLC as it is a tangible benefit for the manufacturer. Although it has only 10-20% contribution in plywood manufacturing technology but the manufacturers are very conscious of it. For the industry if we can reduce a little bit in this regard it will be big amount if you count at the end of the year. But do we calculate what will be the amount saved if we can make plywood at 16% moisture content instead of using over dried veneers? Do we know there will be how much increase in dryer production capacity? Are we aware of the fact that high moisture content in the veneers increases the strength of the panel as high temperature destroys cellulose in wood?

Recently we visited a factory in Malaysia where the consumption of liquid resins is around 3000 Mt per month and you will be surprised to know that they are procuring the resins from an out side resin manufacturer and are not producing of their own. When we asked why - we got the answer that our job is to produce plywood and we are happy with quality and service what we are getting from our resin supplier and we are concentrating only on manufacturing plywood. Similarly, we have observed that most of the plywood producers in China are procuring resins from outside source. Allied Resin has successfully adopted these technologies that has already been proved scientifically and has been implemented by the industries worldwide. Our R&D is working on how to set the same at different working and climatic conditions. We have the solutions to increase the productivity and to reduce the production cost in totality.



Our Formaldehyde Plant in China commissioned successfully

ARCL has formed a JV Company in China namely Zhejiang Allied Chemical Ltd. at Quzhou, Zhejiang province for manufacturing of Formaldehyde and Para formaldehyde by providing in-house technology. The plants have been commissioned successfully and are running smoothly.



Air Pollution

— Asim Das



Today environmental pollution is one of the great matters of concern for all of us. The problem increases with the increasing industrialization process. It is the responsibility of every individual to contribute in this regard to find a solution in long run. As such plywood industries is not exceptional. In plywood Industries, Formaldehyde is one of the main ingredient for making Amino and Phenol formaldehyde resin and at the same time it is the main suspect.

It is very difficult to consume the last traces of formaldehyde during resin manufacturing and this un-reacted free formaldehyde gas comes out to the environment causing air pollution. Secondly after curing also, from amino resins, formaldehyde gas emits through bond hydrolysis. One can smell formaldehyde gas coming out of the panels used in indoor constructions like cabinets, wardrobes etc. Emissions occur during manufacturing of panels and subsequent uses of wood panel – causing health hazard.

From the environmental pollution and health point of view, the regulatory agencies of some countries have established strict guideline for the wood based panel industries also, describing permissible limit of formaldehyde content in wood panels. Different test methods been advised by the different specifications for testing of formaldehyde emission from the boards. Major methods are as below.

1. Chamber Method.
2. Gas Analysis Method
3. Perforated Method
4. Decicator Method

Following are the permissible limit:

Decicator Method

Emission Level	Avg (mg/lit)	Max (mg/lit)
F****	<= 0.3	<=0.4
F***	<=0.5	<=0.7
F**	<=1.5	<=2.1
F*	<=5.0	<=7.0

Perforated Method

For E-1 class <= 8 mg / 100 gm dry coated board.

For E-1 class <= 12 mg / 100 gm dry uncoated board.

Chamber Method

For E1 class <= 0.1 ppm

Gas Analysis Method

For E1 class <= 3.5 mg / HCHO/ hr/m²

Formaldehyde gas release cannot be stopped totally, but it can be reduced to various extents while playing with the resin's molar ratio and subsequently adding various formaldehyde scavengers, catchers etc to the glue mix during production.

At Allied, we have been working very seriously on this project mainly because of our commitments to export where we have to follow European norms and JAS norms etc. In our resins, we have been able to achieve 0.27% free formaldehyde against competitors' min. of 0.5%. We have the technology to help the industry to reduce the free formaldehyde %age in their resins.

Various amino compounds are used for masking of emission or as scavenger or catchers.

Normally resins alone cannot reach to E1 level. It has got to be supplemented with suitable hardeners, catcher or additives. The type of additives again depends on the type of veneers, the quality of resins used and operational parameters. Therefore, there can not be a fixed formula. It has to be application oriented and customer specific. Our Allied technical team has solved many such problems abroad and in India we could not be utilized much as, so far there is no regulation on formaldehyde emission.

Water Pollution

We know that the other name of water is life and without water living body cannot live on earth. If we are not conscious about the polluted water, which is coming from the resin manufacturing process and Wood Panel Industries Glue Kitchen, then living beings surrounding to that particular area cannot survive. This polluted water contains Resin, Formaldehyde and Phenol. At the time of distillation of Cooked Resin, nearly 2 to 4% of Formaldehyde comes out with the distillation. When we distillate Phenolic Resin, we find nearly 0.4% Phenol is coming through distillation which is also very damaging to the living organism. Finally, kettle-washing water also creates lot of Water Pollution.

This water is absorbed by the earth and pollutes our basin water reservoir and thus pollutes river water. Secondly, wash water that comes from kettle wash and spreader is also having huge amount of pollutant, which is dangerous for living beings.

These above practices should be stopped by proper ETP arrangements.

Solution Recommended by ARCL-

- 1] Avoid Distillation by right kind of ingredients - To avoid distillation, we use higher concentration of formaldehyde upto 52%, Urea Formaldehyde Pre-condensates 70 or Para formaldehyde With this system, distillation is not required to get higher solid content liquid resin.
- 2] Kettle wash water can be treated with very simple way so that it can be re-used in the Process. So, no need to throw this water in the sewerage - We wash kettle twice a month and we collect this wash water in an underground concrete pit. We treat this water to separate resinous material and pump out the fresh water after adjusting the pH, which we reuse in our process.

Our technical team is willing to help the industry and concerned pollution contract authorities with the above solutions.

Increasing cost of petrochemical raw materials forcing industry to look for reducing its GLUE LINE COST

- some tips from our experts.

Phenol and Formalin prices are fluctuating abnormally since the last couple of months. Earlier GLC (Glue Line Cost) for the BWP products was considered around 12% of the production cost which has now gone up to 20 % mostly due to the rise in basic raw material prices i.e. Phenol and Formalin. Many experiments are going on at present to keep the GLC down by the Industry of which some are successful to some extent, but it involves lot of attention and risks during the manufacturing process.

Recent modification in the BIS specifications the Cycle Test has been introduced by abolishing the Glue Shear Strength testing. This has encouraged modifying the gluing system also. Many substitute of Phenol has been tried by the Industry like Recycle Phenol, Lignin, Cardinal, etc. to keep the GLC down. We have observed that different zones are following different formulations according to their climatic and working conditions vis-à-vis the species used. South Zone is mostly using Silver Oak, Rubber Wood, local hard woods beside Kalpine (Gurjan), where as the North zone sticks to the traditional Eucalyptus and Poplar combinations. In the south, industry prefers to use modified Phenolic resins where as in the North Zone industry prefers to do partial replacement of phenol or by increasing the Formalin part in the molar ratio during manufacturing of the resin. Although one can reduce the Glue Line Cost by following the above methods, the risk factors are on higher side, which have to be taken care of. Following are the few disadvantages we received from the industry while working with modified phenolic resins and partial replacement of the phenol in resins.

Disadvantages:

1. Testing methods of Formalin and Phenol can be done for the concentration and phenol content respectively whereas no concrete testing method is available in the common lab. for the testing of products used as phenol substitution.
2. Shelf life of the resins produced is less and there is a quick rise in the viscosity as compared to the conventional liquid resin.
3. Exothermic reaction during the manufacturing process is very volatile and hence proper machinery and trained personal is required for handling.
4. Chances of pre-curing is on the higher side during the production process.

5. Variation of the chemical properties from batch to batch is on higher side and hence more attention is required while making the glue at different climatic and working conditions.
6. Solid content is low.
7. The quality of the plywood deteriorates and does not pass the BWP standards.

Therefore, to avoid the defective percentages and also to make the BWR & BWP grade plywood with the modified Phenolic resins and also Phenolic resins with the substitution of Cardinal, Lignin etc. we recommend various additives for different products, which can cater to the above disadvantages and give better quality at a reasonable cost. Similarly, those who are not interested to produce resin and want to reduce their glue line cost, we recommend them to use our MPF powder resins, where at a minimum cost one can make better quality panels.

Although Allied Resins is not discouraging the concept of reducing the GLC, we recommend adopting the cost reduction in totality. Some of the areas where we can improve upon which in totality can reduce the glue line cost of the BWP panels are as below. Glue only caters to maximum of 20% of the total production cost where as we can generate lot of scopes through various innovative resin systems to reduce the production cost in totality.

1. Increase the productivity by reducing the hot pressing time to the UF glue.
2. Increase the Density of your panels through resins and also reduce the compression loss due to the reduction of pressure application by 20%.
3. Make panels at high moisture content i.e. up to 14% as such increase the productivity of your dryer.
4. Reduce the temperature during hot pressing to the UF resin i.e. 110 deg.C
5. Minimize the defects and products will pass all the standards

We have successfully introduced what ever we have mentioned here in the international level at big units where the production per day is around 25000 CBM besides a few industries in India and we are sure all these gluing system will definitely help the industry in long run.

Frequently Asked Questions

Q. Is High moisture veneer gluing(HMV) possible with Indian species? If so then at what moisture content.

Ans: High moisture veneer gluing is successful upto 16% moisture content in case of amino resins and upto 14% in case of phenolic resins. For this system, high solid content resins with some special characteristics like low gel time and low temperature is required. China and Malaysia are using mostly Poplar, Rubber Wood Merantee, Kapoor, and Pine etc. with high moistures and we are successful with Eucalyptus in India with HMV.

Q. Our dryer capacity is not enough as such our hot presses are running at around 70% efficiency. Can you suggest any glue that can work at higher moisture content?

Ans: Normally In India moisture content up to 8% is being used for producing all types of plywood. To get moisture content below 8% in all veneers, which are a mixture of sap & heartwood, soft and hard wood, the dryer efficiency goes down. Therefore, instead of 8% if we can work upto 16%, as successfully done abroad, we can increase the efficiency of dryer atleast by 25% and that can be a big boost to increase the hot press production. Only glue cannot work successfully at high moisture content. For this you have to follow special system, which has some other advantages also beside HMV.

Q. We are producing both MR and BWP grade plywood with 100% Eucalyptus. Our dealers often complain cracking of glue join while nailing. How to get rid of this problem.

Ans: Eucalyptus is a hard non-porous timber as such glue transfer into the veneers is very less. The cracking problem on glue line is mainly due to resin part per sq.ft area, which is very less, and hardly any inter fiber bonding takes place during hot pressing. If you increase the spread during gluing with the normal glue, then the problem of bleed through and blisters may take place. Therefore we suggest to go for thick glue with more resin content and less spread while gluing to avoid this problem.

Q. How productivity will increase in case of pre-pressing.

Ans: If one follows Pre-pressing properly, then productivity will increase definitely. It is mainly due to the hot pressing time reduced by atleast 3 to 5 minutes in case of thicker panels. Secondly, if one follows the auto loading and unloading system, then the time saving will be more, which leads to increase in productivity.

Q. We got some enquiry for export of MR grade plywood. But we are unable to understand the formaldehyde emission norms mentioned i.e. emission level is below < 5.0 mg/l. Can you guide us how to get so.

Ans: I think you are looking for F* resins as per JAS standards. These are low formaldehyde emission grade plywood made out of LFE grade amino resins. Most of the countries follow the emission norms of DIN or JAS for the panels. For this special molar ratio UF resin is required along with some formaldehyde scavengers, which may increase your GLC by about 25% extra.

From our R & D

- **Resins for Parquet Flooring:** We have developed successfully Melamine Urea Formaldehyde Resins gluing system for the China Resin market and launched SBBR-203 for Parquet Flooring with the modifier pack MP-80 and related hardeners. We also developed the Low Formaldehyde Resin powder especially for the thin veneer lamination, which has a big demand in China market.
- **LFE Resins Upgraded:** We have recently modified further our existing Low Formaldehyde Emission Amino Resin SBP-105E accordingly with the modifications in some international standards. Now our mission is to get the E0 level there is hardly any body producing worldwide.
- **Introduced Gas Analysis Method Of Testing:** We are now proud to say that we have the technology and instruments for the testing formaldehyde emissions by Gas Analysis Method also. We have the technology for Decicator Method to evaluate the formaldehyde emissions.
- **Phenolic Glue At MR Cost:** We got an enquiry from Malaysian market for Phenol Formaldehyde based powder resin meant for MR grade plywood at MR grade glue line cost and F* emission level as per JAS standards. We have developed the resin and sent samples for the approval.
- **FRP Glue for all type of Panels:** In general practice core veneers or the panels after production used to pressure impregnated with fire retardant chemicals to FRP plywood. We have developed a fire retardant gluing system with our German Experts and the panel produced out of it is as per various international standards.
- **MPF To Reduce GLC:** We have recently launched in India a cheaper version of Phenolic resin for producing BWR panels as per BIS standard. This product is available both in the form of resin and in the form of additive also.

NEWS WAVES...

International Seminar conducted in Bangladesh

It has always been the endeavor of the company to be close to its customers. We have been exporting our resins to Bangladesh successfully for past many years. This is the first time in Bangladesh where such a seminar was held bringing together all the plywood and particleboard industries at one platform. ARCL organized the seminar at Dhaka Club, Bangladesh on 27th January. The big industries like Star Particle Board (Partex), Akiz, Super Board, MRS Inds., Diamond Particle board etc. attended the seminar and appreciated that such seminar should be organized every year.



This seminar was very successful in true sense as appeared from the response and appreciation we got from the delegates. It was more selling of concepts than the product which people liked very much. The delegates shared their problems, which gave us lot of insights about the industry and helped in giving solutions.

Participating first time in IWF 2008, USA

ARCL has been participating regularly in LIGNA, Germany for many years. Experiencing the overwhelming response from the industry, this year the company decided to participate in IWF 2008 to be held at Atlanta, GA, USA from 20th – 23rd August 2008.

The International Woodworking Machinery & Furniture Supply Fair is one of the world's largest trade show for the furniture manufacturing, architectural woodwork and general woodworking industries. It is more than woodworking. IWF also meets the need of the engineered wood product, composite, wood substitute, display and store fixture, flooring, surfacing, laminating and upholstery industries.

Knowledge is Power

Two-days in-house seminar was organised on 30th and 31st December 2007 at Mini Auditorium of M P Birla Planetarium on Knowledge is Power.



All the officers and managers of the company attended the 1st day, which was mainly about eliminating the darkness of AGYAAN and enlightening ones inner-self with KNOWLEDGE and how to apply them in our daily lives.

interesting to note that knowledge can be interpreted as below :-

- K** Key to character, confidence and success
- N** New ideas and innovations
- O** Outlook is broadened
- W** Widens the horizons of work
- L** Liberation from old practices and theories
- E** An edge over others
- D** Degree of influence increases
- G** Growth is initiated
- E** Enthusiasm is generated



The second day was a Sales meet, which was followed by a gala New Year party of Alliedians at Vedic Village near Calcutta.

Acquisition of Cibatul resin business

ARCL has bought the 40 years old UF resin powder business from Atul (JV business of erstwhile Ciba Geigy and Atul) along with the manufacturing facility, which has been shifted to our Rampur complex near Calcutta.

NEWS WAVES...

Our Technical Team's survey of Resin Market in China

Our technical team visited China to explore the powder resins market. They visited customers in Dalian, Beijing and Guangzhou province etc.



Technical Team at Tianmen Square



Our Team working in Chinese Plywood Factory with 40 daylight press.

a mill where 40 daylight, 4 hot presses are running for 24 hours.

who uses mostly powder resin for veneering, truck and container flooring, 3 – layer parquet flooring, bend wood made in high frequency press. We got a very good response for our phenolic powder resin. Our team also visited the plywood mill and observed their process and we have already sent a trial container and our technical team is visiting shortly for demonstration. Production capacity is very high. We saw

Numero Uno in powder resins globally

With addition of Cibatul's UF dryer and doubling of the Borden UK dryer combined with the Canadian PF dryer, ARCL today has one of the largest powder resins capacity in the world.

Big breakthrough with Giants

After one week's thorough demonstration, our technical team successful introduced High Moisture Veneer gluing in one of the giants plywood mill in Malaysia. This success has boosted the morale of our R&D team.



Group's Activity

Furniture Business Joins Hands with TATA Group

It's a proud privilege for the Allied Group Company M/s. Classic Furniture Mfg. Co. (P) Ltd., to be associated with TATA Group's M-Junction, who has launched our range of furniture for marketing through Internet in India. By clicking on the FURNITURE icon at www.straightline.in, one can have a look at the range of furniture and place order on-line. Thus, CFM's furniture, which was so far for exports only, will be available for Indian market.

AQUATEC emerging as Leader

AQUATEC – the Aqua Pellet Feed Binder is now becoming the leader in the Domestic market. It has got high appreciation from the big houses of Aqua Feed industry. ARCL is the only company in India who manufacturers Aqua Pellet feed binder. To extend the market our negotiation is going on with the parties of Bangladesh, Vietnam, Taiwan and Saudi Arabia. Aquatec has got high appreciation from National Prawn Company of Saudi Arabia, which is the largest Prawn Company of the globe.

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